

Technical FAQs

A. Ponds and Wetland Marsh

- What is the recommended owner maintenance frequency?
 Annually.
- **2.** How often will DEP inspect facilities? Triennially.
- 3. How much sediment may be accumulated within a dry pond, wet pond or wetland marsh before maintenance is required?

Dry pond - 30% of storage; Wet pond - 50% of wet storage; Wetland marsh - Maintain minimum 66% viable wetland; Forebays - 50% of storage.

4. How much sediment may accumulate within the barrel or rip rap outfall before removal is required?

Barrel - 25% obstructed.

Outfall channel - 25% total obstruction of the barrel.

50% intermittent obstruction of the barrel.

5. How deep can water be ponded in an outfall barrel as a result of outfall channel blockage before hydraulic function is impaired?

No more than 25% of the barrel can be obstructed.

6. If native vegetation such as trees, brush, weeds and grasses have overgrown the bottom of the dry pond then should the vegetation be removed (other than the 25 ft. buffer zone)?

Only remove vegetation within 25 ft. of inlet structure. Also, evaluate for possible trash rack retrofit.

7. Should the mowing of primarily grass dry pond bottoms be required?

No, it may be done at owner's option, but not recommended.

- 8. When trees have grown up around or within the rip rap outlet below a barrel, should we remove those trees within twenty feet of the toe of the embankment, even if they are shading the rip rap? Woody vegetation may not be planted on nor allowed to grow within 15 feet of the toe of the embankment and 25 feet of the principal spillway, unless otherwise specified by Maryland Department of the Environment (MDE) DAM Safety Division.
- 9. Assuming that accumulated sediments and vegetation need only be removed within twenty feet of the inlet structure, what form of transition to existing grade and slope stabilization need be utilized to convey water from the pond bottom to the low flow orifice?

Transition grading 20 ft. out from low-flow orifice invert to existing bottom elevation.

Install rip - rap or matting with stabilization.

10. If cracks are found in a precast or poured-in-place riser, should the contractor perform the repair or should the owner be required to secure the services of professional engineer to make an evaluation and submit a repair for approval? Obtain engineer's evaluation for structures with over 100 acres of drainage area or when structural failure is suspected. Otherwise, use standard methods for small on-site repairs.

11. If inspection discovers the existence of a pipe or precast riser joint that is not watertight, then should grouting be specified or should a professional engineer's evaluation and proposal be required?

Leaks in wet pond riser or barrels require an engineer's evaluation. Minor weeps may be pressure grouted using standard methods.

12. When should a metal riser and barrel be replaced?

Obtain engineer's evaluation when barrel perforations or other structural failures are noted. Minor riser perforations may be sealed by patching and recoating, provided that structural failure is not suspected.

13. What falls into the category of undesirable vegetative growth in a wetland marsh?

Cattails, multiflora rose, purple loosestrife and noxious weeds. Advise owner that removal is beneficial, but not required.

B. Oil Grit Separator

1. What is the recommended owner maintenance frequency?

Residential - 6 months Commercial - 3 months

- **2.** How often will DEP inspect facilities? Once a year.
- 3. Is cleaning required before an inspection is made?

Yes, the separator must be dewatered and cleaned prior to the DEP inspection. Cleaning is necessary to inspect the down turned elbow, trash collection rack, structure joints, and other structural elements that are below the normal water level.

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4. If precast joints are not watertight, should repair be required?

Yes, clean and parge with non-shrink grout.

5. May we pump the "clean" column of water from oil and grit chambers into storm drains?

NO! All contents must be disposed of at the Oaks Sanitary Landfill Pretreatment Facility or other facility approved by MDE to accept liquid oil contaminated waste.

C. Infiltration Trench

- What is the recommended owner maintenance frequency?
 Annually
- 2. How often will DEP inspect the trenches?

Triennially

3. How do you determine if an exposed or buried infiltration trench requires maintenance?

If the surface aggregate appears clogged and the observation wells, if present, are continually holding water.

4. What is the recommended repair?

Replace the top layer of aggregate, fabric and inspect flow diverters for clogging or damage.

D. Sand Filters

Under Ground Sand Filters (UGSF) AND Above Ground Sand Filters (AGSF).

1. What is the recommended owner maintenance frequency?

Annually

2. How often will DEP inspect the structures?

Above ground - every three years Underground - every year

3. What repairs will typically be required?

AGSF: Remove trash and leaves. Repair erosion and remove surface sediment deposits. UGSF: Same as for oil grit separator. Replace top layer of stone and top six inches of sand.

4. Is there any way to flush the system?

No flushing methods have proven to be effective. The aggregate must be replaced once it becomes clogged.

5. Is there any partial repair?

Surface Cleaning

E. Water Quality Inlets

1. What is the recommended owner maintenance frequency?

Residential - 6 months

Commercial - 3 months or as per the manufacturers recommendations

- **2.** How often will DEP inspect the facilities? Annually
- **3.** How is the inspection conducted? Same as for the oil grit separator including cleaning to allow below water level inspection. Also, the inspection port in bypass ring must be checked.
- **4. What clean out methods are acceptable?** All contents must be disposed of at the Oaks

Sanitary Landfill Pretreatment Facility or other facility approved by MDE to accept liquid oil contaminated waste.

F. Underground Detention Structures

1. What is the recommended owner maintenance frequency?

Annually

2. How often will DEP inspect the structures?

Annually

3. What is recommended repair for separated metal pipe joints?

Replace if crushed, install internal bolted or welded band if marginal.

4. Any special requirements for concrete vaults?

Check for structural cracks, leaks, rust or staining. Clean trash racks, check for broken weir plates, bulkheads, and steps. Remove trash and accumulated sediment.

Caution: no one should enter these structures without the proper training, certification and permits for confined space entry. Entering confined spaces without these requirements is a violation of state law and could be dangerous or deadly.

Compiled by the Montgomery County
Department of Permitting Services and the
Department of Environmental Protection. For
additional information contact the Division of
Environmental Policy and Compliance 255
Rockville Pike, Rockville, Maryland 20850 or
visit our website askDER.com.

For more information:



Department of Environmental Protection / Montgomery County, Maryland 255 Rockville Pike, Suite 120, Rockville, MD 20850 240.777.7770 fax: 240.777.7765

e-mail: help@askDEP.com





Common Stormwater Management Structures

Stormwater management is a process through which wet weather runoff is managed by constructing and maintaining facilities to infiltrate, filter, detain or retain the stormwater to remove pollutants, protect stream banks and prevent flooding. Managing stormwater through various techniques and practices is important to stop the damage which uncontrolled stormwater can do to streams.

Stormwater management structures have two basic functions: controlling the quantity of stormwater discharging, which helps to prevent flooding, stream bank erosion, and controlling the quality of stormwater discharging to our streams by removing pollutants in the water. Some structures provide both controls, while site constraints or other design considerations may require only one control.

Some of the most common stormwater structures installed in residential settings used to manage stormwater include infiltration trenches, sand filters, dry ponds, wet ponds, and oil/grit separators.

Infiltration Trenches

In Montgomery County, infiltration trenches are primarily used to filter pollutants and do not usually detain large quantities of stormwater. Some infiltration trenches are comprised of gravel filled trench, with a sand-filled bottom and a top layer of filter fabric. The top layer of fabric usually becomes clogged and will require replacement. Infiltration trenches allow stormwater to move slowly back into the ground removing pollutants as the water moves through gravel, sand, and finally the surrounding soil.

Infiltration trenches are not usually installed where large amounts of oil, grease, or other toxics may runoff with the stormwater and eventually contaminate the groundwater. Infiltration trenches installed at a time before adequate soil testing regulations existed may not function properly due to the poor absorptive abilities of the surrounding soil or because shallow groundwater saturates the soil beneath the trench, prohibiting the infiltration

of stormwater. Monitoring wells are usually installed in the trenches to determine how well stormwater moves through the structure.

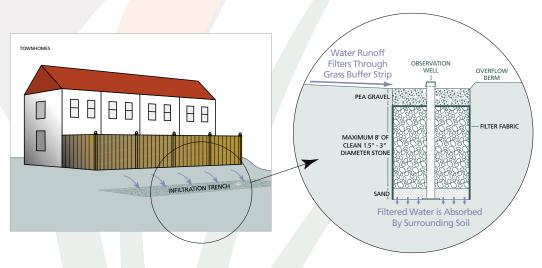
The gravel and sand in the trench can eventually become clogged and require replacement. Other maintenance items for infiltration trenches include removing vegetation that has encroached on the surface of the trench, and maintaining the cap on the observation well.

Sand Filters

Sand filters are stormwater facilities that use sand to filter and remove pollutants. Sand is used to provide a higher degree of filtering and pollutant removal as compared to infiltration trenches. Sand filters are generally classified as either: surface or underground.

Surface sand filters can range in size from 200 square feet to over 3/4 of an acre, have a sand depth of 18" comprising a bed or basin configuration and can vary depending on the drainage area they control. Surface

sand filters have a tendency to clog if not maintained on a routine basis. The surface of the filter should be raked four times a year to break up any surface crust. Algal build up can significantly contribute to the premature failure of the structure. Algal growth is usually attributable to excessive application of lawn fertilizer during the wrong time of the year. Total replacement of the sand will be required and replacement time will vary depending on

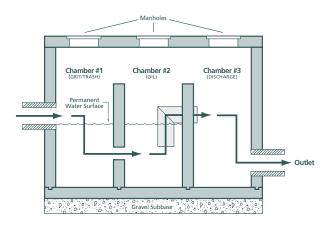


Typical Infiltration Trench

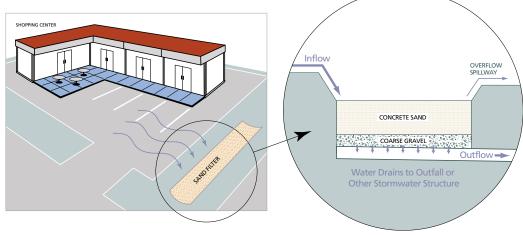
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maintenance and pollutant input. Some surface sand filters have an underdrain that discharges stormwater when the filter becomes clogged, usually when the entire sand needs to be replaced. They are usually installed in conjunction with other stormwater management facilities in order to provide advance pollutant removal.

Underground sand filters are usually installed in commercial settings such a gasolene station where space is limited and enhanced pollutant removal is necessary. They are located under the parking lot or pavement and are installed with an oil/grit separator for advanced pollutant removal. They are smaller than surface sand filters, have about 18" of sand, and have varying design features. Because of the commercial activity onsite, clogging due to automotive fluids and other pollutants may necessitate the frequent replacement of the sand.



Oil/Grit Separator



Typical Sand Filter

Oil/Grit Separators

Oil/Grit Separators are underground concrete storage structures that are designed to remove oils and other automotive fluids and sediment from stormwater. The structure is composed of a sediment-trapping chamber, an oil separation chamber and a third chamber that discharges the water. These structures require annual pumping and cleaning. Studies have found that these

"older" designed structures are not very efficient at retaining and separating pollutants.

What You Can Do

Infiltration trenches, sand filters, and oil/grit separators are just a few of the common structures designed to help clean stormwater. To keep these structures functioning prop-

erly, it is important to perform simple maintenance tasks.

These may include preventing grass from growing on the trenches and above ground filters, and keeping debris from clogging the inlets to oil/grit separators. Prevent contamination by properly storing pesticides, used oil, pool chemicals, or other potential pollutants at a suitable distance away from infiltration trenches other stormwater structures.

In considering additions to parking lots, buildings or other amenities, such as tennis courts or a storage shed, be certain not to place these facilities over the stormwater structures or in the actual drainage path. Poorly located sheds or otherwise altering the drainage flows can cause stormwater to run off and cause erosion at other locations on the property.

For assistance and more information such as proper storage techniques and information about stormwater facility maintenance visit the DEP website: **stormwater.askdep.com**

For more information:



Department of Environmental Protection / Montgomery County, Maryland 255 Rockville Pike, Suite 120, Rockville, MD 20850 240.777.7770 fax: 240.777.7765

e-mail: help@askDEP.com





Stormwater Ponds

Dry Ponds

Dry ponds or detention ponds are commonly used stormwater management structures which detain the stormwater for a period of about 48 to 72 hours after a storm and slowly discharge the water over this time. The slow metering discharge of the water replaces the gushing rush of uncontrolled stormwater that can tear down stream banks and cause flooding. During a heavy rainfall dry ponds will fill and resemble ponds that have a permanent pool but empty completely after the storm is over.

Dry ponds range in size from a few thousand square feet to several acres, depending on the drainage area they control. They typically consist of a grass interior basin with a flow channel, dam embankment and a control structure.

Inspection of dry ponds in the county has revealed that the most common repair item is the presence of trees and vegetation on the dam embankment. Trees are prohibited on the dam embankment because they could be blown over and cause weakening of the structural integrity of the dam and cause flooding below. Another common mainte-

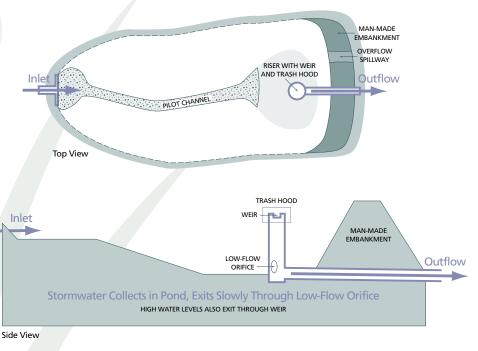
nance concern for dry ponds is that the low flow orifice on the control structure becomes clogged and the pond retains water on a permanent basis. This condition reduces the stream bank protection measures of the pond by allowing the water entering the pond to discharge directly out the control structure without being detained. Routine trash removal from the pond basin will prevent the orifice from becoming clogged, thereby ensuring stream bank protection.

Wet Ponds

Wet ponds or retention ponds are the most easily recognizable stormwater management structures installed in residential areas of Montgomery County. Wet ponds have a permanent pool of water, which enhances its pollutant removal capabilities. Storm event runoff enters the pond and excess water is discharged at a controlled rate by a weir in the control structure.

Wet ponds typically occupy acres of land area, depending on the drainage area served, and have a control structure which regulates the discharge to provide a constant flow of water to the stream. Wet ponds are used because of their efficient pollutant removal capabilities. Pollutants such as sediment, nitrates and phosphates from fertilizers, and even automotive related heavy metals such as copper and lead are significantly reduced in stormwater discharges due to the long retention time in wet ponds.

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Typical Dry Pond

Because of the permanent pool of water, the pond's riser structures are subject to additional wear and tear due to water pressure. Leaking riser and barrel joints are some common repair areas for these ponds. Advanced pollutant removal capabilities means that sediment and "muck" will have to be removed from the pond. Routine inspection is imperative to determine that these ponds are safe and continue to function as important water quality protectors.

During the heat of the summer wet ponds can look green and slimy due to excessive algal bloom, usually the result of excess lawn fertilizer and pet waste being washed into the pond from the surrounding neighborhoods during spring rains.

What You Can Do

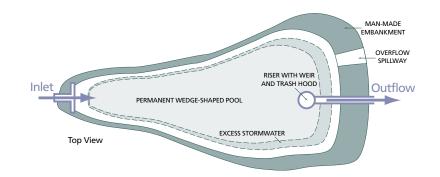
Stormwater facilities must be respected and maintained to prevent flooding, stream erosion, costly repairs, and a decline in the health of our waterways and communities.

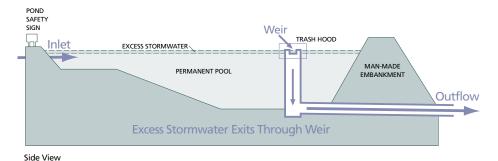


Otherwise neglected ponds can be developed into magnificent birding and wildlife viewing areas by making repairs which could include colorful native plantings. Neighborhoods can become safer, property values increased, and future repair costs avoided by implementing maintenance programs which involve the whole community in the care, enjoyment, and protection of their local watershed.

By enacting the Water Quality Protection Charge, Montgomery County and DEP have made a commitment to recognize that maintenance of stormwater facilities is a benefit to all citizens — and to the environment. But Montgomery County and DEP cannot do it alone. We need your help. Performing aesthetic maintenance by cutting grass around the pond and regular trash removal not only benefits your neighborhood but improves water quality and the quality of life for everyone.

For assistance and more information such as planting techniques and information about stormwater facility maintenance visit the DEP website: **stormwater.askdep.com**





Typical Wet Pond

For more information:



Department of Environmental Protection / Montgomery County, Maryland 255 Rockville Pike, Suite 120, Rockville, MD 20850 240.777.7770 fax: 240.777.7765 e-mail: help@askDEP.com





Stormwater Facility Transfer Program

Property Owner's Guide

Transfer Program

In 2002, the Department of Environmental Protection (DEP) developed a program that gives stormwater facility owners the ability to transfer the maintenance and repair responsibilities for their stormwater structure to DEP. An owner of a stormwater facility can use this document as a guide to filling out the application and the process of transferring the maintenance responsibilities to DEP's Stormwater Facilities Maintenance Program.

This process has three stages:

Stage 1 - Pre-application: gathering information to prepare the application

Stage 2 - Application: submitting the completed application and gathered information for review by DEP and the Office of the County Attorney

Stage 3 - Post-application: finalizing transfer by recording the documents and obtaining a certified copy

Once these stages are completed, Montgomery County becomes the only entity responsible for structural maintenance of the facility. The property owner, however, remains the owner of the facility and continues to be responsible for aesthetic maintenance (e.g., trash removal, landscaping, grass cutting, etc.) around the facility.

Stage 1 - Pre-application

In order to fill out the application, owners need to gather documents, such as easements and covenants and information on the stormwater facility and property location. This process is necessary not only to provide details of the responsibilities of both Montgomery County and the property owner, but also to specify the conditions of the maintenance methods, such as heavy equipment access and when to expect the maintenance to begin. This research is also necessary to ensure the applicant is the verified owner and that the former owner, in many cases the developer, transferred the common area property as required.

Use the following list as a guide for gathering the appropriate information for the application:

- How many and what type of stormwater facilities does the property have? Does the property have a stormwater pond, sand filter, oil/grit separator, infiltration trench, underground storage structure, or only storm drains (pipes and ditches leading directly to the stream)? Storm drains are not part of the Stormwater Facility Maintenance Program and cannot be transferred.
- 2. Where are the facilities located on the property? (For example, Outlot A, Block B, between Church Street and Butler Road.)
- 3. What are the stormwater facility numbers? (For example, 2444, 2444.2) If unknown, please contact DEP for the stormwater facility numbers.
- 4. Have these facilities been recently inspected and repairs approved by DEP? (For example, the sand filter was given a final inspection approval by DEP on 12/23/03.)
- 5. Does the property have a deed? Has the property been transferred to the homeowner's association from the developer? A deed will determine that the developer transferred the common property. DEP is discovering many properties that were not transferred years after completion of the development. A copy of the deed must be submitted to DEP with the application.
- Does the stormwater facility have the appropriate easements and covenants? Stormwater facilities built before 1984 may not have easements and covenants recorded. If not, then new ease-



Stormwater Wet Pond

ments and covenants are needed to complete the transfer process. If a covenant exists, have it amended to give the county legal rights to perform maintenance on the storm-water facility. The easement is needed to amend the covenant. DEP's website (askDEP.com) has a sample document for amending covenants. New easements and covenants or amended covenants must be submitted to DEP with the application.

- 7. Do you have an attorney? DEP suggests that property owners hire an attorney to assist in researching and preparing documents to complete the transfer process. Attorneys can be especially helpful if the deed cannot be located.
- 8. Do you have your most recent tax bill? Turn this in with the application.
- 9. Do you need help? DEP is happy to assist you with this process. Please contact Boyd Church at 240-777-7760 or Boyd.Church@montgomerycountymd.gov and include in your message the location of the stormwater facility. DEP can provide the structure type and facility number if the location of the stormwater facility is included in the message.

Preparing the Application

Once most or all of the information described above has been collected, the Stormwater Facility Maintenance Transfer Application and legal documents can be submitted for legal review by DEP and the Montgomery County Office of the County Attorney. An application can be obtained by downloading it from DEP's website (askDEP.com) or by contacting DEP. Applicants must complete, sign, notarize, and submit to DEP all of the appropriate transaction documents, such as grants of easement, declaration of covenants, or covenant amendments. Also, a copy of the original deed that shows transfer from the developer to the property owner for the parcel, and the most recent tax bill, must be included with the initial submission.

Stage 2 - Application

After the application and supporting information are submitted, DEP reviews the package and sends it to the Office of the County Attorney for legal review and certification. The County Attorney returns the documents to DEP for sub-

mission to the County Executive. After the documents are signed by the County Executive, DEP returns the fully executed documents to the applicant for recordation in the land records. Typically, Stage 2, Application, takes about one month to complete.



Stormwater Dry Pond

Stage 3 - Post-application

At this stage, the transfer process is almost finished and all that remains is for the signed documents to be recorded in land records. The applicant must record the document in the County Land Records and receive a certified copy. A certified copy can be obtained by taking documents that have been numbered and indexed to Room 219 of the Judicial Center in Rockville.

Stage 3 can take up to 6 months to complete; DEP can issue a preliminary approval letter to the property owner at this point at the applicant request. The official approval letter will not be sent out until the applicant obtains a certified copy of recorded documents from County Land Records and submits a copy to DEP. Once DEP receives the certified copy of the recorded documents, Montgomery County becomes the only entity responsible for structural maintenance of the stormwater facility.

For more information:







DEPARTMENT OF ENVIRONMENTAL PROTECTION Stormwater Facility Maintenance Program

255 Rockville Pike, Suite 120 Rockville, MD 20850

Main Number: 240-777-7770 • Fax Number: 240-777-7752

Non-Structural (Aesthetic) Maintenance Responsibilities for Stormwater Management Facilities

MAINTENANCE	STORMWATER FACILITY TYPE					
TYPE	Dry Ponds	Wet Ponds	Sand Filters	Infiltration Trenches		
Grass Cutting and Mowing (Perform at least twice a year)	 Downstream slope of dam to the toe Top of the dam Upstream slope of dam and remove all cut vegetation 25 feet around the control structure and remove all cut vegetation Inlet channels in pond and remove all cut vegetation Channels, headwalls, and pipes into pond area Outlet channel and remove all cut vegetation 	 Downstream slope of dam to the toe Top of the dam Upstream slope of dam and remove all cut vegetation Outlet channel and remove all cut vegetation Channels, headwalls, and pipes within pond area 	 In and around the sand filter and remove all cut vegetation Prevent cut grass from blowing onto sand filter during mowing Prevent grass from growing in sand filter 	 Around the trench and remove all cut vegetation from the trench Prevent cut grass from blowing onto the trench during mowing Prevent grass from growing in the trench (if designed with stones) 		
Woody Vegetation Cutting and Removal (Perform at least twice a year)	 All trees and woody vegetation from the upstream and downstream dam slopes All trees and woody vegetation from the top of the dam All trees and woody vegetation from inlet and outlet channels All trees and woody vegetation within 25 feet of controls structure Prevent trees and woody vegetation from growing in or around the flow control 	 All trees and woody vegetation from the upstream and downstream dam slopes All trees and woody vegetation from the top of the dam All trees and woody vegetation from outlet channel All trees and woody vegetation from channels, headwalls, and pipes into pond area Prevent trees and woody vegetation from growing in or around the flow control) 	 All trees and woody vegetation in sand filter Prevent trees and woody vegetation from growing in sand filter 	 All trees and woody vegetation in the trench Prevent trees and woody vegetation from growing in trench 		
Trash and Debris Removal (Monthly)	From all areas in and around the pond	From all areas in and around the pond	From all areas in and around the sand filter	From all areas in and around the trench		
Other		 Verify that all pond safety signs are in place 	Discourage children from playing with the sand and damaging and removing the plastic caps.	Discourage children from playing with the stones and damaging and removing of the plastic caps.		

Non-Structural (Aesthetic) Maintenance Responsibilities for Stormwater Management Facilities

MAINTENANCE	STORMWATER FACILITY TYPE				
TYPE	Constructed Wetlands	Vegetated Pools or Plunge Pools	Bioretention	Infiltration Basin or Pond/Sand Filter	
Grass Cutting and Mowing (Perform at least twice a year)	 Downstream slope of dam to the toe Top of the dam Upstream slope of dam and remove all cut vegetation Outlet channel and remove all cut vegetation Channels, headwalls, and pipes into pond area Do not cut or trim special wetland vegetation 	All areas of the vegetated pool and remove all cut vegetation	N/A	 Downstream slope of dam to the toe Top of the dam Upstream slope of dam and remove all cut vegetation Channels, headwalls, and pipes into pond area 25 feet around the control structure and remove all cut vegetation Outlet channel and remove all cut vegetation Around the sand filter or trench and remove all cut vegetation Prevent cut grass from blowing onto sand filter or trench during mowing Prevent grass from growing in sand filter or trench (if trench is designed with stone) 	
Woody Vegetation Cutting and Removal (Perform at least twice a year)	 All woody vegetation that is not part of the wetland design (consult with DEP) All trees and woody vegetation from channels, headwalls, and pipes into pond area Prevent trees and wood vegetation from growing on or around the structure (unless authorized by DEP) 	 All woody vegetation from within and around the structure Prevent trees and woody vegetation from growing on or around the structure (unless authorized by DEP) 	N/A	 All trees and woody vegetation from the upstream and downstream dam slopes All trees and woody vegetation from the top of the dam All trees and woody vegetation outlet channels All trees and woody vegetation within 25 feet of controls structure All trees and woody vegetation from sand filter or trench Prevent trees and woody vegetation from growing in or around the flow control 	
Trash and Debris Removal (Monthly)	From all areas of the wetland	From all areas of the vegetated pool	From all areas of the Bioretention area	From all areas of the structure	
Other	 Verify that all pond safety signs are in place Do not cut or trim special wetland vegetation 		 Prevent snow and ice piles from accumulating on top of Bioretention area and killing plants Re-mulch every 2 to 3 years Do not remove, cut, or trim special woody and herbaceous Bioretention vegetation. 	 Discourage children from playing with the sand filter sand and trench stones. Discourage children from damaging and removing plastic caps. 	